AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for fabricating a photocatalytic fluorescent lamp device capable of cleaning air, comprising:

(1) formulating a photocatalyst anatase TiO_2 sol mixture and dip coating a glass fiber cloth or glass fiber sleeve with said photocatalyst anatase TiO_2 sol mixture, wherein the photocatalyst anatase TiO_2 sol mixture comprises nano crystalline of Anatase TiO_2 particles;

(2) drying said photocatalyst sol coated glass fiber cloth or glass fiber sleeve into a nano-crystalline-photocatalyst-coated glass fiber cloth or glass fiber sleeve in 100-250°C;

(3) impregnating said photocatalyst-coated glass fiber cloth or glass fiber sleeve with a solution of an oxidation catalyst comprising precious metals or transition metal-oxides;

(4) drying again said impregnated photocatalyst-coated glass fiber cloth or glass fiber sleeve;

(5) tailoring the photocatalyst sol coated glass fiber cloth or glass fiber sleeve obtained from step (2) or said impregnated photocatalyst-coated glass fiber cloth or glass fiber sleeve from step (4) to a fluorescent lamp tube and encompassing at least a portion of said fluorescent lamp tube with said photocatalyst-coated glass fiber cloth or glass fiber sleeve; and

(6) using UV resistant glue, thermal plastic ring belt, sewing, or laser sintering techniques to fix said photocatalyst-coated glass fiber cloth or glass fiber sleeve on said fluorescent lamp tube,

wherein said nano-crystalline-photocatalyst-coated glass fiber cloth or glass fiber sleeve is excited by UV or visible light to produce photocatalytic interaction.

2. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said photocatalyst anatase TiO_2 sol mixture comprises nano particles of WO_3, ZnO, SnO_2, or Fe_2O_3, and at least comprises anatase TiO_2 nano crystalline particles therein made of titanium alkoxide $Ti(OR)_4$ as a raw component that is dissolved in aqueous solution containing alcohol for preparing nano crystalline particle anatase TiO_2 sol.

3. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 2, wherein said nano crystalline particle anatase TiO_2 sol is prepared by acidic method including the steps of:

using acidic process to prepare anatase TiO_2 sol; and

adding $H4TiO_4$ sol to a $H4TiO_4$/ anatase TiO_2 ratio greater than 0 wt% up to 10wt%, thereby improving thickness, adhesion, and hardness of nano crystalline anatase TiO_2 sol coating.

4. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 2, wherein said nano crystalline particle anatase TiO_2 sol is prepared by alkaline method including the steps of:

using alkaline process to prepare anatase TiO_2 sol; and

adding $H4TiO_4$ sol to a $H4TiO_4$/ anatase TiO_2 ratio greater than 0 wt% up to 10wt%, thereby improving thickness, adhesion, and hardness of nano crystalline anatase TiO_2 sol coating.

5. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said glass fiber cloth and glass fiber sleeve is made of a plurality of single fiber by woven or melted method, and said glass fiber cloth and glass fiber sleeve are porous, transparent, and in roll form.

6. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein when applying said anatase TiO2 sol mixture on glass fiber cloth and glass fiber sleeve to carry out photocatalytic by sol gel coating, photocatalyst thereof integrates with said glass fiber cloth and glass sleeve with chemical bonding, such that photocatalyst thereof will not peel off from said glass fiber cloth and glass fiber sleeve.

7. (Currently Amended) ~~The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein nano-sized oxidation catalyst comprising nano-sized precious metals or nano-sized transition metals oxides is added when preparing said anatase TiO_2 sol mixture~~ A method for fabricating a photocatalytic fluorescent lamp device capable of cleaning air, comprising:

(1) formulating a photocatalyst anatase TiO_2 sol mixture with nano-sized oxidation catalyst and dip coating a glass fiber cloth or glass fiber sleeve with said photocatalyst anatase TiO_2 sol mixture with nano-sized oxidation catalyst, wherein the photocatalyst anatase TiO_2 sol

mixture comprises nano crystalline of Anatase TiO_2 particles, and the nano-sized oxidation catalyst comprises nano-sized precious metals or nano-sized transition metals-oxides;

(2) drying said photocatalyst sol coated glass fiber cloth or glass fiber sleeve into a nano-crystalline-photocatalyst-coated glass fiber cloth or glass fiber sleeve in 100-250°C;

(3) drying again said impregnated photocatalyst-coated glass fiber cloth or glass fiber sleeve;

(4) tailoring the photocatalyst sol coated glass fiber cloth or glass fiber sleeve obtained from step (2) or said impregnated photocatalyst-coated glass fiber cloth or glass fiber sleeve from step (3) to a fluorescent lamp tube and encompassing at least a portion of said fluorescent lamp tube with said photocatalyst-coated glass fiber cloth or glass fiber sleeve; and

(5) using UV resistant glue, thermal plastic ring belt, sewing, or laser sintering techniques to fix said photocatalyst-coated glass fiber cloth or glass fiber sleeve on said fluorescent lamp tube,

wherein said nano-crystalline-photocatalyst-coated glass fiber cloth or glass fiber sleeve is excited by UV or visible light to produce photocatalytic interaction.

8. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said photocatalyst anatase TiO_2 sol mixture is blended with oxidation catalyst comprising Pd, Pt, Au, or Ag precious metal salt solution, or Pd, Pt, Au, or Ag precious metal nano-particle sol in a manner such that said precious metal quantity is less than about 1.0 wt% of anatase TiO_2.

9. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said photocatalyst anatase TiO_2 sol mixture blended with oxidation catalyst comprising W, Zn, Fe, Mo, Nb, V, Ce, or Cr transition metal salt solution, or W, Zn, Fe, Mo, Nb, V, Ce, or Cr transition metal-oxides nanoparticle sol in a manner that said transition metal quantity is less than about 100 wt% of anatase TiO_2.

10. (Original) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said photocatalyst-coated glass fiber cloth or glass fiber sleeve on said fluorescent lamp tube is shaped according to the shape of said fluorescent lamp tube, and said photocatalyst-coated glass fiber cloth or glass fiber sleeve is tailored and cut into size matching the size of said fluorescent lamp tube, or said fluorescent lamp tube is tightly wrapped with said photocatalyst-coated glass fiber cloth, or said fluorescent lamp tube is covered by glass fiber sleeve.

11. (Original) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said fluorescent lamp emits 420-700nm visible light and a small amount of 365nm and 405nm near UV as light source for lighting and air cleaning.

12. (Previously Presented) The method for fabricating a photocatalytic fluorescent lamp capable of cleaning air as claimed in claim 1, wherein said photocatalytic fluorescent lamp made by anatase TiO_2 nano crystalline particle sol mixture coated on glass fiber cloth or sleeve wrapping or covering said fluorescent lamp can be excited by UV or visible light emitted from

said fluorescent lamp to produce photocatalytic interaction, thereby achieving good illumination, and effectively cleaning air such as waste gas degradation, odor eliminating, anti-bacteria, and self-cleaning.

13-16. (Cancelled)